

Stalcup, Dana

From: Murray, Bill
Sent: Friday, September 04, 2015 2:51 PM
To: Stalcup, Dana; Woolford, James
Cc: Rigger, Don; Fitz-James, Schatzi; Hestmark, Martin; Stavnes, Sandra
Subject: RE: Re-commencement of work at Standard Mine, CO, NPL Site

Dana and Jim,

Thanks for your support in wending our way through this process.

Bill

From: Stalcup, Dana
Sent: Friday, September 04, 2015 12:47 PM
To: Murray, Bill; Woolford, James
Cc: Rigger, Don; Fitz-James, Schatzi; Hestmark, Martin; Stavnes, Sandra
Subject: RE: Re-commencement of work at Standard Mine, CO, NPL Site

Bill and Martin,

On behalf of OSRTI,

As stated in Bill's note, we held a conference call yesterday to discuss the potential re-start of work at Standard Mine. As noted, the independent study conducted by OSRTI contractors indicated that the plan developed by the Region is appropriate based on site-specific considerations. The memo you provided from the RPMs was very helpful in our understanding of the technical approach you plan to take. Further, you have identified an emergency action plan for your work at the site. Thus, OSRTI concurs with your plan to proceed with the probe hole dewatering characterization plan and 30-60% designs associated with the Level 1 adit rehabilitation efforts at the site.

I want to thank Region 8 for your efforts and patience during the cessation process and we appreciate all your efforts in carrying out the Agency's mission in protecting human health and the environment. If you have any questions or require further assistance, please call me at 703-603-8702.

Thanks! - Dana

Dana Stalcup
Director, Assessment and Remediation Division
OSWER/Office of Superfund Remediation and Technology Innovation (OSRTI)
Desk – 703-603-8702
Cell – 202-309-5473

From: Murray, Bill
Sent: Friday, September 04, 2015 2:04 PM
To: Woolford, James
Cc: Stalcup, Dana; Rigger, Don; Fitz-James, Schatzi; Hestmark, Martin; Stavnes, Sandra
Subject: Re-commencement of work at Standard Mine, CO, NPL Site

Jim,

On Martin's behalf I am writing you in accordance with procedures developed for re-commencing work at sites impacted by the Cessation of Activity at Mining Sites memo as described in the September 4, 2015, memo from you to the Superfund Division Directors. Work at the Standard Mine, CO, NPL site was stopped on Thursday, August 13. Subsequently, a rigorous review of the Standard Mine workplans was conducted by OSRTI contractors and Shahid Mahmud along with other members of the GKM internal review team. On a conference call yesterday with OSRTI senior managers and staff the Region was told that the review supported re-commencing work on Tuesday, September 8, 2015. This email serves to formally request your approval for this action. I am also attaching a technical memo from Jim Hanley, Standard Mine RPM, which details (item #4) the Site **Emergency Action Plan** for dealing with any mine emergencies.

Bill Murray, Program Director
Superfund Remedial Program
US EPA Region 8
(303)312-6401



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

Ref: EPR-S

MEMORANDUM

SUBJECT: GKM Internal Review Report Conclusions Applied to the Standard Mine case

FROM: Jim Hanley/Christina Progross (RPMs)

TO: Martin Hestmark, Sandy Stavnes, Bill Murray, Steve Wharton, Deborah McKean

Based on our review of the available information, the Standard Mine Site Team (Team) is providing the Region 8 management team with the following conclusions regarding how the lessons learned from the GKM internal review have been satisfied through the preparation of site work plan documents and guidance to our contractors.

1. The EPA remedial action team has extensive experience with the investigation and closure of mines. The EPA remedial team had consulted with and had the field support of the Colorado Department of Reclamation, Mining, and Safety (DRMS) Inactive Mine Program staff. The EPA remedial action team also performed outreach to the Standard Mine Advisory Group (SMAG) to provide an opportunity for additional input from the community of interest regarding the planned activities. The EPA remedial team and the other entities consulted or who provided information about the proposed activities had extensive site knowledge of the mine workings and extensive experience evaluating and working on mine sites. None of those participating or informed parties raised any significant concerns with the proposed activities.
2. In preparation for the remedial action activities, EPA had collected and analyzed flow data, was familiar with site topography, and had inspected the site for signs of seeps, including the area above the Level One and Level Three Adits, prior to implementing the execution of the work plan. The potential volume of water stored within the Level One Adit has been estimated. Given the maps and information known about this mine, a worst case scenario estimate was calculated and used for planning purposes. Although complete information is never available before starting a remedial action, performing such calculations has aided the site management team in preparing for contingencies where water is anticipated to be trapped in an adit. The interconnectivity of mine workings, to the extent reasonably known or verified, has been used to estimate potential water volume prior to opening up a collapsed adit.

3. Additional expert opinions from regional mining staff in Regions 1, 9, and 10 have been consulted for sites with collapsed adits, complex interconnectivity of mine workings, and highly transmissive bedrock groundwater systems. In addition, an independent third-party contractor experienced with mining site optimization strategies has prepared a technical review report.
4. **The Site Management Plan contains an Emergency Action Plan (EAP) and includes provisions for mine emergencies including cave-ins. More importantly, it also contains an emergency notification call-down list with outreach protocols in the case of a significant flow or blow out. It should be noted that the site team has held a table top emergency communication exercise to test our satellite telephone equipment and to verify our telephone numbers for the local emergency planning committees in the Town of Crested Butte and Gunnison County.**
5. The Standard Mine is located in a remote, rugged mountain location in the Rocky Mountains. The level of effort necessary to mobilize a drill rig and create a drill pad to undertake drilling to determine pressure (hydrostatic head) within the mine has already been accomplished during the remedial investigation phase of the project. Drilling four boreholes to intercept the Adit has provided the information needed to ascertain the pressure behind the collapsed workings within the mine. That pressure is minimal and on the order of 1 psi equivalent to two feet of standing water and was measured again in August 2015 to verify current conditions.

Stalcup, Dana

From: Rigger, Don
Sent: Friday, September 11, 2015 5:14 PM
To: Lindsay, Nancy; Lyons, John
Cc: Woolford, James; Stalcup, Dana; Fitz-James, Schatzi
Subject: Leviathan Mine

Nancy:

On behalf of OSRTI, we held a conference call today to discuss the proposed PRP's remedial investigation (RI) sampling at Leviathan Mine. As discussed, the RPM with contractor support visited the site to evaluate conditions, consulted with the immediate project team and a beaver expert and requested Region 9's mine specialist to review recommendations for this work. The RI sampling in Leviathan Creek is necessary to determine the risk, nature and extent of contamination. After 4 years drought, many of the 28 ponds are currently dried out, facilitating sampling if done soon. With the potential effects of El Nino predicted for CA during the rainy season, it is prudent to conduct the sampling expediently. Additionally, mitigation and communication plan will be developed before sampling commences, and EPA will oversee the work. Based on site-specific considerations, OSRTI concurs with your plan to proceed with the PRP to conduct RI sampling.

Thank you for your patience during the cessation process. If you have any questions, please contact Dana Stalcup at 703-603-8702.

Don Rigger, Acting Deputy Director
Office of Superfund Remediation and Technology Innovation
Office of Solid Waste and Emergency Response
US Environmental Protection Agency
1200 Penn. Ave., NW
Washington, DC 20460

Stalcup, Dana

From: Lindsay, Nancy
Sent: Thursday, September 10, 2015 4:43 PM
To: Stalcup, Dana; Woolford, James; Mahmud, Shahid; Fitz-James, Schatzi
Cc: Manzanilla, Enrique; Lyons, John; Shaffer, Caleb
Subject: Consultation Requested: Leviathan Mine Work

Importance: High

Dana, Jim, Shahid & Schatzi,

Per Jim's memo of September 4, 2015, Region 9 would like to consult with you regarding work at the Leviathan Mine site in California. If at all possible, I would like to talk with you tomorrow, September 11th. I was briefed on this site last week and, in consultation with Enrique, gave approval to have the PRP prepare to do RI field work so they can get it done this season while water levels are low. I am confident that you will agree that this is category 1 work and should proceed; however, the PRP's contractor is ready to mobilize in the field, so time is of the essence for a consultation.

Below is a summary and recommendations for current Leviathan work, consistent with the Division management briefing the end of last week. These recommendations were developed after a site visit by the RPM and contracting support to evaluate conditions at the site, consultation internally with the immediate project team, consultation with a beaver expert, and a review by our Region 9 mine specialist.

RI Sampling: THIS WORK NEEDS TO PROCEED.

Critical characterization of sediment within Leviathan Creek needs to occur to determine the risk, nature and extent of contamination. Many of the 28 ponds are currently dried out completely due to drought conditions, making sampling easy. Delaying until next year will both stall the cleanup for up to another year due to the winter season, as well increase the risk if sampling is conducted next year when the ponds may be at capacity after the rainy season. Minimal dewatering will be needed via pumping from a watered pond to a dry pond sequentially as sampling occurs in each transect moving upstream. The largest pond, which is almost at the lowest point downstream, has a capacity large enough (490,000 gallons) to hold the entire volume of upstream pond water (240,000 gallons), offering further protection. The base flow of the Creek is 10 gpm, which will be diverted. The area where the RI Sampling will be conducted is not the immediate area where acid mine drainage is being generated. Finally, this site work would be evaluated as a Category 1 under the "Interim Guidance for Continuation of Work and Development of Comprehensive List of Superfund Mining and Mineral Processing Sites." **We plan to proceed with RI sampling in the Leviathan Creek.** A letter to the responsible party has been sent out requesting that they proceed with this work. A communication and mitigation plan will be developed before the work. Additionally, EPA will be given 72 hours' notice and be onsite to directly oversee the PRP's activities. It is estimated that the work will take two weeks to complete.

Beaver Dams: THIS WORK IS ON HOLD UNTIL NEXT YEAR.

Leviathan Creek contains 28 beaver dams, a number of them with ponds behind them. Visual inspection and evaluation shows the total volume of water behind beaver dams is about 1 million gallons. There is significant excess capacity in lower dams, with many of them dry. While there is no immediate risk, if a historically significant rainy season occurs, there is a remote possibility that the dams could be compromised. Currently, EPA has not characterized sediment sufficiently behind the dams, as it is currently in the RI phase of cleanup. EPA evaluated killing the beavers and removing the dams before the rainy season. Issues that arose during this evaluation included: an uncharacterized risk due to the need to do RI sampling; debris

management concerns with landowners requesting that over 200 dump truck loads of dam debris be trucked offsite without existing roads; beavers would immediately repopulate and the problem would persist; and the inability to complete the work before the winter season. Due to these factors, **we recommend that the beaver dams are monitored, and a reevaluation be conducted next year.** EPA will conduct site visits to continue to monitor beaver dam conditions. Since beaver dams have occurred on the river for at least the last five years without being compromised, we anticipate it will continue to be the case this year. There are no immediate residents downstream, and Leviathan Creek flows into a much larger river in approximately 10 miles. We will, however, prepare a Downstream Notification Contingency Plan per Mathy's memo of September 4th, and ensure that our federal, state and tribal partners and other stakeholders are aware of conditions.

Lastly, we are continuing our on-site AMD treatment system operations which are essential for AMD management and water quality improvements. Let me know if you have any questions, or want to discuss this at any time tomorrow.

Thanks,

Nancy Lindsay
Deputy Director, Superfund Division, Region 9
415-972-3840

Stalcup, Dana

From: Stalcup, Dana
Sent: Tuesday, October 06, 2015 2:43 PM
To: Lindsay, Nancy; Rigger, Don; Mahmud, Shahid; Fitz-James, Schatzi
Cc: Shane, Dan; Meer, Daniel; Allen, HarryL; Manzanilla, Enrique; Hillenbrand, John; Wetmore, Cynthia; Minor, Dustin; Moutoux, Nicole; Lyons, John; Woolford, James; Wells, Suzanne; Zaragoza, Larry; Gartner, Lois; Melissa G. Dreyfus (Dreyfus.Melissa@epa.gov)
Subject: Coordination/consultation on Argonaut Mine Proceed with Stormwater Diversions

Nancy, thanks for providing this detailed explanation of the short- and long-term plans at the Argonaut Mine site. Thanks also for providing additional explanation and answering our questions on our conference call earlier today.

On behalf of OSRTI, we agree with the approach laid out in the attached e-mail, and we agree that you should proceed with the work outlined in the attached e-mail, with the following caveats:

- ☐ The Argonaut Mine should be considered a Category 3 site based on the probably hydraulic hazard risk the tailings present. The fact that we have agreed with the work you plan to conduct, and the fact that certain parts of the site and activities at the site do not present the same level of risk, does not change the category of the overall site.
- ☐ Prior to initiating any work beyond the stormwater control work detailed in the attached e-mail, such as any work on reinforcing the dam itself, you should check back in with OSRTI to assure that we reach agreement on the planned activities.
- ☐ The approach outlined appears to appropriately address the concerns we have regarding the risks the site poses. However, to be clear, and as touched on in your e-mail, you must ensure that appropriate notification and emergency procedures are established and understood prior to proceeding with the work.

Please let us know if you have any questions or concerns with these caveats or your planned work. Thanks - Dana

Dana Stalcup
Director, Assessment and Remediation Division
OSWER/Office of Superfund Remediation and Technology Innovation (OSRTI)
Desk – 703-603-8702
Cell – 202-309-5473

From: Lindsay, Nancy
Sent: Monday, October 05, 2015 7:31 PM
To: Stalcup, Dana; Rigger, Don; Mahmud, Shahid; Fitz-James, Schatzi
Cc: Shane, Dan; Meer, Daniel; Allen, HarryL; Manzanilla, Enrique; Hillenbrand, John; Wetmore, Cynthia; Minor, Dustin; Moutoux, Nicole; Lyons, John; Lindsay, Nancy
Subject: Revised - use this one: Argonaut Mine - Consultation to Proceed with Stormwater Diversions

Dana, Don, Shahid & Schatzi,

Per Jim Woolford's memo of September 4, 2015, Region 9 consulted with HQ (you all, Jim Woolford and a host of others via conference call) on September 23, 2015 regarding work at the Argonaut Mine site in

California. Argonaut is identified as a site for which we need to evaluate and discuss work with HQ prior to proceeding with field work. The purpose of this email is to document our discussion.

Background:

The Argonaut Mine Site is an historical hard rock gold mine that operated from the 1850s to 1942. The Argonaut Mining Company processed ore and disposed of tailings in an alluvial valley south of the mine. The 64.8-acre site (tailings disposal site) includes impoundments, earthen tailings dams, a concrete multiple arch dam, and an old cyanide plant. Sulfide minerals in the ore and waste rock produce acid mine drainage (pH 1-2) with rainfall and the tailings are susceptible to wind dispersion, erosion and runoff. The tailings contain high concentrations of arsenic, lead and mercury.

In March 2015, EPA conducted a removal action (Phase I) which involved the excavation of 1872 cubic yards of contaminated soils and tailings from a vacant lot. The highest arsenic concentration was 59,000 mg/kg. During the March 2015 Removal Action, soil sampling was conducted at 19 properties that may have been impacted from tailings disposal activities. A total of 12 properties were found to have high levels of arsenic in surface soils. A total of 11 property owners signed access agreements and pre-remediation work plans. Additionally, high levels of arsenic in surface soils were found on the slopes of a large, steep embankment at the Jackson Junior High School (JJHS). In July, EPA mobilized to conduct a removal action (Phase 1 - continuation) to remove contaminated soils from 9 residential properties, prepare and cap the slopes of the embankment at the school with shotcrete and install a perimeter cyclone fence to protect the cap.

In July, EPA completed a Site Inspection (SI) report for Argonaut Mine Site. The purpose of the SI is to determine whether the site qualifies for possible placement on the National Priorities List ("NPL"); the report presents the results and conclusions of the SI. The main finding of the report considers the mine as a source of arsenic, lead, and mercury contamination, and concludes the site is eligible for NPL listing. We will be seeking Governor's concurrence for NPL listing this fall and anticipate proposing the site to the NPL in the spring of 2016.

During the environmental investigations at the site, the EPA noticed structural deterioration of the Eastwood Multiple Arch Dam (EMAD). In 2013, the California Department of Toxic Substances (DTSC) shared their similar concerns about the dam's stability with EPA. Built in 1916, the dam holds more than 165,000 cubic yards of metal-contaminated tailings and soils. For forty years, dam inspections, maintenance, and repairs have been neglected.

EPA commissioned the U.S. Army Corps of Engineers (USACE) to evaluate the stability of the dam to determine the risk of release of hazardous contaminants. After a series of investigations, analyses, and reports, USACE has determined the dam to be structurally unstable. A dam failure could result in a mudslide containing metals-contaminated tailings and threatens the town of Jackson. EPA met with federal, state, and local agencies in July 2015 to discuss a plan to address the dam's structural problems. All agencies are in agreement that action should be taken.

Current Activities & Next Steps:

As we discussed on September 23rd, we have been working closely with the State of California to address critical needs and the state is seeking funding for design and retrofit of the dam, as well as stormwater control measures described below. While design work is in progress for the EMAD reinforcement, construction work will not occur until the summer of 2016. In the meantime, we are working with the state and local agencies on emergency planning. Additionally, the state plans to implement stormwater diversion measures which needed before this winter to reduce the risk of dam failure in the event of heavy rains. We believe the stormwater diversion work falls into Tier 1. The recommendations were developed by OSC Dan Shane and our emergency response contractors in consultation with our National Mine Team expert, John Hillenbrand, our Construction

Engineer, Cynthia Wetmore, and state officials. The State of California's contractor is developing a draft Interim Measures Work Plan. We anticipate the work will include:

Upgradient of the EMAD:

- ☐ Storm water pumping system
- ☐ Construction of raised roadbed and water gate valve
- ☐ Construction of a lined sump
- ☐ Pipeline from pumps to culvert around the dam
- ☐ Subcontract operators to man and maintain the pumps

Downgradient of the EMAD:

- ☐ Construction of 24" or 36" culvert under Argonaut Drive
- ☐ Coordinate with DWR on hydraulic analysis to size roadbed elevation, sump, pumps, pipeline and culvert
- ☐ Water quality testing in Jackson Creek (turbidity, temperature, pH, As, Pb, Hg?)

In the meantime, we have worked with the USACE to improve Dam Safety Monitoring:

- ☐ Set up permanent survey markers at the dam
- ☐ Survey and monitor movement of the dam
- ☐ Develop a field inspection checklist to be used by USACE and local structural engineer
- ☐ Perform periodic inspections of the dam and during large storm events; the state plans to contract with a local engineering company to perform frequent inspections.

Based on our conversation on September 23rd, we understand that HQ is supportive of proceeding with the work outlined in this memo. If you have any other questions or concerns, please contact me or OSC Dan Shane. Thank you for your assistance.

Nancy Lindsay
Deputy Director, Superfund Division, Region 9
415-972-3840

Site Name: Callahan Mine

Location: Brooksville, ME

Site Summary: EPA implemented the OUI cleanup to remove PCB contamination from the former mine operations area and to remove mine waste from residential yards from 2010-2013. The design for the tailing impoundment stabilization and closure was completed in 2015. EPA awarded a cooperative agreement to the State of Maine in 2015 to support the installation of a horizontal drain to reduce the water level within the tailing behind the tailing dam. EPA has expected to implement the closure of the tailing impoundment in 2017. The design for the sediment and waste rock excavation and placement in the former mine pit is ongoing.

Mine Features: Tailing, waste rock, former operations area, mine pit.

Features containing water: Tailing impoundment and mine pit.

Assessment of water bearing mine features:

Features that contain water and have controls in-place (plugs, hydraulic drawdown):

None.

Features that contain water and have no controls in place and there could be hydraulic issues in the future:

Features that contain water with no controls and no hydraulic issues are anticipated:

Mine Pit: The mine pit is 300 feet deep and 600 feet across. The pit was created after the mining company drained the estuary using dams at both ends. After mining, the dams were removed and the mine pit is now beneath the estuary. Therefore there are no hydraulic issues with the mine pit.

Tailing Impoundment: The Tailings Impoundment area is approximately 17-acres containing about 700,000 cubic yards of flotation mill tailing. The tailing is contained by a three-sided berm that was constructed against a sloping hillside. The berm is constructed of cobble and boulder-sized waste rock materials. The eastern side of the dam is approximately 60-feet tall and has an average slope of approximately 1.3:1. The interior of the tailing impoundment dam was lined with clay and plastic to retain water within the impoundment.

The final design, which was reviewed by EPA, the US Army Corp, and the Maine DEP, identified the need for initial reduction in the water table at the front of the tailing impoundment immediately behind the tailing dam. The design identified that the coarse-grained tailings at the front of the tailing impoundment are suitable for dewatering in a relatively short period of time. A groundwater model was developed to support the design, and it was used to evaluate dewatering of the Tailings Impoundment both prior to construction and after capping. An evaluation of potential dewatering methods identified that horizontal wells (i.e., drains) as the most cost-effective means of dewatering. A detailed stability assessment was performed to assess the current, construction, and post-construction stability of the tailing impoundment. The stability assessment documented that the tailing impoundment is marginally stable under long-term static conditions (i.e., the FOS is on the order of 1.1 to 1.2 but does not meet the regulatory-standard FOS of 1.5) and that it may become unstable (i.e., $FOS < 1.0$) during or immediately following a long-term-design-magnitude earthquake. The stability assessment performed for the

installation of the horizontal wells indicates that the stability was acceptable during installation and that the critical activity is the initial set up with the installation of the drilling platform. This activity has already been completed. The drill pad has been constructed and the outer casing has been installed beneath the tailing impoundment dam. The horizontal well will be installed through the outer casing to provide control of any tailing that may flush out of the borehole. The work has been completed for this week and will begin again next Tuesday or Wednesday. To stop work would require termination of the contractor with payment for demobilization and materials, cost to remobilize the contractor, the risk of performing the work in adverse weather in Maine, and the lost opportunity to implement an action that will actually contribute to the stability of the tailing impoundment. The cover system construction cannot begin until the water levels have declined to the level targeted in the design so termination may also delay the start of the remaining remedial action activities. This is not an investigation activity, it is remedial action.

Ongoing and near term activities that should be allowed to continue or occur at the Site:

- ☐ Collection of samples from soil, surface water, groundwater, and biota to support design and site investigation activities.
- ☐ Design of the OU3 Sediment and Waste Rock Remedial Action.
- ☐ Installation of a horizontal well beneath into the Tailing Impoundment.
- ☐ Maintenance of the completed OU1 Remedial Action by Maine DEP.

Stalcup, Dana

From: Zaragoza, Larry
Sent: Friday, October 16, 2015 1:38 PM
To: Stalcup, Dana
Subject: FW: Callahan follow-up
Attachments: 2015-09-30.Decision to Continue Work.pdf

Here you go

From: Hathaway, Ed
Sent: Wednesday, September 30, 2015 1:49 PM
To: Zaragoza, Larry
Cc: Loughlin, Anni; Olson, Bryan; Barmakian, Nancy
Subject: Callahan follow-up

Larry,

As discussed in the attached memo, the Region consulted with HQ regarding the Callahan Mine prior to the decision to move forward with the project. The consultation was with Dana Stalcup. The Region informed HQ that it intended to continue the work at Callahan Mine based on the technical evaluation of the work, the minimal risk of a release, and the additional safety precautions that were developed to further reduce the potential for a release.

Please let me know if you need any additional detail.

Best regards,

Ed Hathaway

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

MEMORANDUM

DATE: September 30, 2015

SUBJ: Decision to Continue Work at Callahan Mine Superfund Site, Brooksville, ME

FROM: Anni Loughlin, Chief, ME/VT/CT Superfund Section

TO: File

The purpose of this memo is to document the decision to continue work at the Callahan Mine Superfund Site in Brooksville, Maine in August 2015 and beyond.

In light of the Gold King Mine release in Colorado in early August, EPA HQ issued a memo on August 14, 2015, *Cessation of Work at Mining/Tailings Sites and Other Related Actions at Superfund Sites*. The memo directs cessation of any field remedial/removal assessment or investigation work, but includes exceptions for sites/projects where certain conditions exist, including where "ceasing site operations poses or would pose an imminent threat to human life, or a significant increase in environmental risk greater than that if work halts."

At the time of the Gold King Mine release and initial response, work was ongoing at the Callahan Mine site to install horizontal drains to dewater the tailings impoundment. This water table reduction was expected to increase the stability of the impoundment and therefore allow for later tailings excavation and closure of the impoundment. The initial design, approved in July 2015, included geotechnical studies and assessments regarding the stability of the tailings impoundment, and concluded that the installation of the horizontal drain would not significantly reduce the safety factor of the impoundment. A supplemental geotechnical assessment performed by a subcontractor used even more conservative assumptions; this supplemental assessment confirmed the determination that the horizontal drain installation was not expected to increase the likelihood of a global failure of the tailings impoundment. (See attached letter dated August 17, 2015, from CES Inc. to the Maine Department of Environmental Protection.)

Installation of a horizontal drain at the tailings impoundment began on July 27, 2015. As of August 12, 2015, the first phase of work was complete – installation of a steel casing under the berm. The second phase of work – directional drilling for installation of a horizontal drain through the casing – was scheduled to begin in mid to late-August.

The issuance of the August 14, 2015 *Cessation of Work* memo was preceded by e-mail correspondence and telephone discussions between Region I and Headquarters, including RPM Ed Hathaway, regarding the status of work at the Callahan Mine site, as well as the Elizabeth Mine Superfund Site in Strafford, Vermont, the Ely Copper Mine Superfund Site in Vershire,

Vermont, and the Pike Hill Copper Mine in Corinth, Vermont. Ed provided information to EPA HQ to justify continuing the horizontal drain work, rather than stopping the work halfway through the installation, which would increase the likelihood of leakage from the tailings impoundment. Ed also provided extensive support to respond to Gold King Mine release issues through the National Mining Team.

The *Cessation of Work* memo was distributed to various staff in OSRR on August 17, 2015. On Tuesday, August 18, 2015, I confirmed with both Nancy Barmakian, Acting Division Director of OSRR, and RPM Ed Hathaway that continuation of work at the Callahan Mine site could continue as an ongoing construction activity, and sent Ed the attached e-mail.

Work resumed the week of August 24, with the horizontal well/drain set on August 28-29 and successful removal of the outer casing. A 200-foot solid grout seal was installed around the outside of the well, and an inspection on August 31, 2015 confirmed the grout seal was in good condition with no leaks. A passive treatment system will be installed to treat discharge from the well/drain.

Attachments



Engineers • Environmental Scientists • Surveyors

August 17, 2015

Naji Akladiss
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Re: Measures to Prevent the Release of Tailings as part of the Horizontal Drain
Installation at Callahan Mine

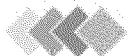
Dear Naji:

EPA and Maine DEP (MEDEP) are implementing cleanup actions at the Callahan Mine Superfund Site in Brooksville, Maine. The cleanup work was initially described in the September 2009 Operable Unit 1 (OU1) Record of Decision (ROD) for the Callahan Mine site. The work included in the OU1 ROD was separated into two operable units as part of the September 2013 Explanation of Significant Differences (ESD) to the OU1 ROD. OU1 was re-defined to include the cleanup of residential properties and the PCB contamination. The OU1 cleanup work was completed in 2013. Operable Unit 3 (OU3) was created to include two activities: the closure and stabilization of the Tailings Impoundment; and the excavation and consolidation into the former mine pit of the contaminated sediments and waste rock.

A design, prepared by AMEC, for the OU3 Tailings Impoundment closure and stabilization was approved in July 2015. A critical component of the cleanup is the installation of horizontal drains to achieve an initial reduction in the water table that is predicted to increase the stability of the impoundment and, therefore, allow for the tailings excavation and relocation and other configuration changes necessary to perform the permanent closure (remediation) of the Tailings Impoundment. The horizontal drains will also support the long-term dewatering of the Tailings Impoundment.

As part of their design, geotechnical studies and assessments were performed by AMEC to assess the current, construction related, and post-cleanup stability of the Tailings Impoundment. AMEC's OU3 Tailings Impoundment Remedial Design concluded that the installation of the horizontal drain would not significantly reduce the factor of safety of the Tailings Impoundment. As part of CES' development of the implementation plans for the installation of one initial horizontal drain, a supplemental geotechnical assessment of the proposed horizontal drain installation was performed by Schonewald Engineering Associates, Inc. (SchonewaldEA), as a subconsultant to CES, using the more specific information available with respect to the siting and implementation strategy for the horizontal drain. This assessment corroborated the work completed by AMEC, as well as prior work by Credere (2012). The recent work by SchonewaldEA considered relatively extreme (conservative) conditions (e.g., higher than average water level within the Tailings Impoundment and substantial soil strength reduction along the horizontal drain) and conservatively ignored three-dimensional effects. In aggregate the assessments indicate that the installation of the horizontal drain will not result in a substantive reduction of the existing factor of safety against global instability during drain

MDEP | 08.17.2015 | 5992.14 | Page 1



Six Locations in Maine | www.ces-maine.com

445 South Main Street
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construction. As such, the horizontal drain installation is not expected to increase the likelihood of a global failure of the Tailings Impoundment.

Installation of a horizontal drain at the Tailings Impoundment at the Callahan Mine Superfund Site in support of OU3 remedial activities began on July 27, 2015. The horizontal drain will be used to lower the groundwater elevation within the Tailings Impoundment in preparation for future OU3 remedial activities. The installation of a horizontal drain will be completed by directional drilling through clay material under the Tailings Impoundment berm into the Tailings material. Safeguards have been incorporated into the project to prevent the uncontrolled loss of Tailings and liquid material from the horizontal drain borehole during the directional drilling activity.

The first phase of work in preparation for the directional drilling was completed on August 12, 2015, which includes the installation of 40 linear feet of 16-inch diameter steel casing at a -11.7% angle under the berm. Approximately half of the casing is installed into the native clay and the remainder has been backfilled with a clay material. The upper end of the casing is daylighted and a flange assembly, including a slip-on flange and blind flange, has been installed on the end of the casing to allow for the casing to be sealed. The casing will be grouted in-place with a bentonite-cement grout to seal the annular space between the native clay and steel casing. The grouting is schedule to be completed by August 21, 2015.


The directional drilling for the installation of the horizontal drain will be performed through this casing. One bolt will be installed in the flange set prior to the directional drilling operation. In the event that during the directional drilling the tailings material is liquefied and flows in an uncontrollable, free-flowing manner through the horizontal drain borehole, the blind flange will be rolled into place to seal the casing. At this point the horizontal drain borehole will be abandoned. The volumes of tailings material that are removed during the drilling operation will be monitored to ensure that they are within the estimated volumes for the drilling operation. Material from the drilling operations will be managed by pumping and returning the materials into the Tailings Impoundment.

The second phase of the work for the installation of the horizontal drain has been initiated. The mobilization of the directional drilling equipment and horizontal drain materials is currently in process. The arrival of the equipment and supplies are scheduled for as early as August 18, 2015. As part of the second phase, a valve pit (HD-4) will be constructed in order to maintain desired flow (0 to 6.26 gallons per minute) of liquid from the Tailings Impoundment into the on-site treatment system. The discharge of treated water will be monitored to confirm levels are within applicable water quality criteria.

The updated drawing (Sheet C502) depicting the protective casing, flange, valve pit, and horizontal drain is attached.

Sincerely,
CES, Inc.


Denis St. Peter, PE
President/Project Manager


Nate Gustafson, PE
Project Engineer

DSP/NG/gdr
cc: Be Schonewald
David Burns

Loughlin, Anni

From: Loughlin, Anni
Sent: Tuesday, August 18, 2015 8:44 AM
To: Hathaway, Ed; Olson, Bryan; Barmakian, Nancy
Subject: RE: Ongoing activity at Callahan

Ed, I'm just confirming for us all that you are correct, the Callahan Mine work can continue as an ongoing construction activity.

Thanks again so much for all of your hard work these last couple weeks on the mining issues.

From: Hathaway, Ed
Sent: Monday, August 17, 2015 5:35 PM
To: Loughlin, Anni; Olson, Bryan; Barmakian, Nancy
Subject: Ongoing activity at Callahan

I am assuming that the Callahan Mine work can continue as ongoing construction activities were allowed by the memo released today. Just so you know we took this seriously, the attached memo includes a re-evaluation of the safety of the horizontal drain installation. This was developed over the past week to summarize the evaluations that were done in advance of the construction activities.

Ed

Stalcup, Dana

From: Hestmark, Martin
Sent: Thursday, August 13, 2015 8:59 PM
To: Woolford, James
Cc: Murray, Bill; Stalcup, Dana; Cheatham, Reggie; McGrath, Shaun; DalSoglio, Julie; Stavnes, Sandra; Ostrander, David; Williams, Laura
Subject: Re: Urgent Region 8 Request for Clarification on Cessation Directive

Do we have something in front of Reggie and k for gold king and red and Bonita?

Sent from my iPhone

On Aug 13, 2015, at 6:25 PM, Woolford, James <Woolford.James@epa.gov> wrote:

Bill, et. al.

Thanks for inquiring about this site.

I have coordinated with the OSWER IO - Mathy, Barry, and Nitin.


Based on the description in your email, and as you recommend in your email, we approve your continuing your response work at Bullion Mine.

Jim Woolford, Director

Office of Superfund Remediation and Technology Innovation

Office of Solid Waste and Emergency Response

US EPA

Phone: 703-603-8960  (office)

Mailing address:

1200 PA Ave. NW

Washington, DC 20460

Mail Code - 5201 P

Address

2777 S. Crystal Drive

Arlington, VA 22202

Room 5622

Note - EPA email cannot receive or send emails greater than 25 mbs.

From: Murray, Bill

Sent: Thursday, August 13, 2015 7:14 PM

To: Woolford, James; Stalcup, Dana; Cheatham, Reggie

Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Stavnes, Sandra; Ostrander, David; Williams, Laura

Subject: Urgent Region 8 Request for Clarification on Cessation Directive

Subject: Clarification on the Exclusion from the Cessation Directive for Time Critical Removal Actions in general and specifically at Basin Mining NPL Site

Clarification Request: Based on the draft language in the Woolford/Cheatam memo, we want to know if Time Critical Removal Actions are/will be excluded from the cessation directive. We have a number of Time Critical Removal Actions underway at mining sites and this clarification is urgently needed. We would like a written confirmation that we can continue these removals.

BACKGROUND on Bullion Mine at the Basin Mining NPL Site

Removal activities to be completed for OU6 are:

- Installation of a relief well near the Bullion Mine adit intercept boring to prevent a blowout, and to pump the AMD water for treatment in 2015. Local drilling subcontractors to be determined and procured by ER (FY14).

- Removal of site non-historical cabin structures. Clearing and grading area in designated retention pond location, and construction of retention ponds (FY14).
- Treatment of approximately 2.5 million gallons of trapped mine water, and discharging treated water to Jill Creek (FY15).
- Removal of debris creating blockage in adit and installation of a drainage system to allow the AMD flowing freely from the mine adit onto the existing rock-lined channel (FY15).
- Ongoing road maintenance for site accessibility and safety (FY14, FY15).
- Disposal of contaminated sludge and debris at Luttrell Repository

The OSC has placed a berm along the road to contain and direct any adit flow to the treatment/retention pond. He also will have an excavator on site today just in case. We have pumped the volume of water down in the adit behind the debris plug, those materials may have dried out and shifted position somewhat. **If we now stop pumping and treating, the mine would refill and put pressure back on the destabilized plug, which could result in a blowout.** The safest path forward is to continue to pump and treat and fully dewater the mine. The State is fully supportive of our continued dewatering effort.

The distance from the collapsed portal to the well that we are pumping water out of is about 300 feet. If the adit diameter is 4' (most likely scenario), the volume in the adit below the well is 28,201 gallons. If the diameter is 6', the volume is 63,451 gallons. To be extremely conservative, if the diameter is 10', the volume is 176,255 gallons. Our treatment pond below the adit portal holds 350,000 gallons, so even with an ongoing flow rate of AMD from the mine of 10 to 20 gallons/minute, this pond is large enough to contain the mine sludges left in the tunnel between the well and the portal.

It is clear that ongoing pump and treatment of the AMD mine pool in the Bullion adit is the safest path forward as it is relieving pressure on the debris plug, and it would be counter-productive to stop our pumping and treating of mine water now. We believe, based on water elevation measurements in the well standpipe, that we've removed over half the volume of water that was in the adit. The total volume we estimated in the adit was approximately 2.5 million gallons prior to beginning the pumping and treating operation. The OSC is excavating a channel over to the treatment/retention pond today in the unlikely event that the debris plug fails before we complete the pump and treat operations. We have the equipment and materials on site to capture and treat any unexpected breach of the debris plugged adit. I can provide additional pictures and would be happy to go up to the site with you this afternoon if need be.

Mahmud, Shahid

From: Jenkins, Joy
Sent: Tuesday, September 29, 2015 6:19 PM
To: Mahmud, Shahid; Williams, Laura
Cc: Ostrander, David; Murray, Bill; Wharton, Steve; Hanley, Jim
Subject: RE: List of "work will continue in order to prevent an increased risk of incident" mine sites

Status on the **Captain Jack Mill** site:

- 1) The site is State lead. The State of Colorado's contractor, Harrison Western, is proceeding currently with installing the external monitoring systems this fall. This work will include tasks done from the surface including bore hole drilling and monitoring well installation as well as trenching for pipeline installation. Some entry into the tunnel is needed this fall for surveying and verifying bore hole casing for holes into the tunnel. We plan to do the significant work inside the tunnel next spring, this will include, mucking sediment, placing limestone, and constructing a concrete bulkhead with flow through capability.
- 2) Current information about depth of water behind a known ore pile in the tunnel, based on depth of water in a bore hole into the tunnel some distance in by from the ore pile and know tunnel floor elevations, indicates very low probability of significant pressure. Fall work plan includes drilling a bore hole into the tunnel closer to the in by side of the ore pile to confirm depth of water. Past evaluations at the site including the RI and listing information that indicate that there is probability of a mine tunnel blowout. However, upon further inspection of the information available on the ore pile in the tunnel and water depth information available to date, a blowout is has very low probably of occurrence, but consequences could be significant since there is a water treatment intake diversion 15 miles downstream. Therefore, the remedy should be implemented as planned to prevent this potential event from occurring naturally at some point in the future.
- 3) If water level behind the ore pile is found to be significant (base on planned bore hole depth measurements) water can be pumped out of the tunnel, through this bore hole and released via temporary pipeline to existing settling ponds in a controlled manner, prior to installation of the bulkhead.
- 4) We are currently in process of an internal review to be completed by our Region 8 mining engineer. The review will be focused on the in-tunnel work planned for next spring. I have briefed R8-EPR management in a presentation format and was verbally ok'ed to proceed with work external to the tunnel. A technical memorandum will be written by our mining engineer reviewing the in-tunnel plans and the memo will be provided to EPR management and HQ (Shahid).

Please let me know if you need more information

Cheers, Joy

Joy Jenkins, Ph.D., P.E.
Environmental Engineer
Remedial Project Manager
Superfund Remedial Program (8EPR-SR)
U.S. EPA Region 8
1595 Wynkoop Street
Denver, Colorado 80202
Phone: 303-312-6873
Fax: 303-312-7151
Travel/remote work phone: 720-951-0793
E-mail: jenkins.joy@epa.gov

From: Mahmud, Shahid

Sent: Tuesday, September 29, 2015 2:44 PM

To: Williams, Laura

Cc: Ostrander, David; Murray, Bill; Jenkins, Joy

Subject: List of "work will continue in order to prevent an increased risk of incident" mine sites

Hi Laura,

Barry Breen has asked us to get updates on the "work will continue in order to prevent an increased risk of incident" mine sites. The Region 8 list includes the following sites:

- ☐ Red and Bonita Mine
- ☐ Boullion Mine
- ☐ Pennsylvania Mine
- ☐ Captain Jack Mine

We were hoping you can provide updates on the following:

1. What is the current status of work at these mines? Has the work from this summer been completed? What did it involve?
2. What is the status of any threat from a liquid mine water release at the mine, especially liquid mine waters under pressure?
3. How are any threats of liquid mine water releases being managed?
4. Was there written documentation that provided the basis for the decision to proceed (email or memo).

We need to get an update to the OSWER IO by tomorrow so this response is time sensitive. Sorry for the short turnaround.

Thanks!

Shahid Mahmud

Team Leader, EPA Abandoned Mine Lands Team

703-603-8789

mahmud.shahid@epa.gov

Stalcup, Dana

From: Stavnes, Sandra
Sent: Friday, August 14, 2015 5:51 PM
To: Stalcup, Dana; Woolford, James; Murray, Bill; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; Card, Joan; Peronard, Paul; Woodyard, Josh; Schlieger, Brian; Fitz-James, Schatzi; Gartner, Lois
Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

Thank you we will continue the Penn Mine work.

Sandy

Sandra A. Stavnes
Deputy Assistant Regional Administrator
Office of Ecosystems Protection and Remediation (8EPR)
USEPA Region 8
1595 Wynkoop Street
Denver, CO 80202
email: stavnes.sandra@epa.gov
phone: 303-312-6117

From: Stalcup, Dana
Sent: Friday, August 14, 2015 3:47 PM
To: Stavnes, Sandra; Woolford, James; Murray, Bill; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; Card, Joan; Peronard, Paul; Woodyard, Josh; Schlieger, Brian; Fitz-James, Schatzi; Gartner, Lois
Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

Sandy and all,

We are in the process of signing and distributing the memo from Jim W and Reggie C implementing the Administrator's directive. In that memo, there are at least two exceptions from ceasing work that we think apply to the Penn Mine. Thus, per your information and the implementation memo, we think you should continue the work at the Penn Mine site. OSRTI has coordinated with OEM on this question.

Please let me know if you have any questions. Thanks - Dana

Dana Stalcup
Director, Assessment and Remediation Division
OSWER/Office of Superfund Remediation and Technology Innovation (OSRTI)
Desk – 703-603-8702
Cell – 202-309-5473



From: Stalcup, Dana

Sent: Friday, August 14, 2015 5:31 PM

To: Stavnes, Sandra; Woolford, James; Murray, Bill; Cheatham, Reggie

Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; Card, Joan; Peronard, Paul

Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

We will try to get back to you very shortly. - Dana

Dana Stalcup

Director, Assessment and Remediation Division

OSWER/Office of Superfund Remediation and Technology Innovation (OSRTI)

Desk – 703-603-8702

Cell – 202-309-5473



From: Stavnes, Sandra

Sent: Friday, August 14, 2015 5:09 PM

To: Woolford, James; Murray, Bill; Stalcup, Dana; Cheatham, Reggie

Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; Card, Joan; Peronard, Paul

Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

I know you are all busy but wondering whether you have had a chance to take a look at our request to continue work at Penn mine. Paul Peronard and I will be in the office for another hour or so. If you think it will take more time let me know so that I can check in over the weekend.

Thanks.

Sandy

Sandra A. Stavnes

Deputy Assistant Regional Administrator

Office of Ecosystems Protection and Remediation (8EPR)

USEPA Region 8

1595 Wynkoop Street

Denver, CO 80202

email: stavnes.sandra@epa.gov

phone: 303-312-6117

From: Stavnes, Sandra
Sent: Friday, August 14, 2015 10:44 AM
To: Woolford, James; Murray, Bill; Stalcup, Dana; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; DalSoglio, Julie; Bloom, Judy; Card, Joan; Peronard, Paul
Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

Jim/Reggie/Dana

Attached is the write up for Penn Mine outlining the current ongoing work and rationale for continuing. We look forward to getting your approval to continue work at this site. I will be in all day today so please get back to me as soon as you can.

Thanks!
Sandy

Sandra A. Stavnes
Deputy Assistant Regional Administrator
Office of Ecosystems Protection and Remediation (8EPR)
USEPA Region 8
1595 Wynkoop Street
Denver, CO 80202
email: stavnes.sandra@epa.gov
phone: 303-312-6117

From: Stavnes, Sandra
Sent: Friday, August 14, 2015 10:00 AM
To: Woolford, James; Murray, Bill; Stalcup, Dana; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Ostrander, David; Williams, Laura; DalSoglio, Julie; Bloom, Judy; Card, Joan
Subject: RE: Urgent Region 8 Request for Clarification on Cessation Directive

Jim/Dana/Reggie

Attached is Region 8's table in response to the Cessation Directive. We have also attached a table for 319 mining work that is ongoing.

Bill Murray asked yesterday whether there is a blanket exclusion for time critical removals. We currently have a time critical removal going on at the Pennsylvania Mine in Keystone Colorado (see table) and I will be sending you a current status shortly to seek your approval for continuing that work. Also Martin asked about getting approval for continuing work at the Red and Bonita Mine near the Gold King. Have you made a decision on the R and B work and do you need more information from us on R and B?

We are continuing work at Bullion Mine based on your approval yesterday. We have stopped work at Standard Mine near Crested Butte CO pending HQs/Regional decision.

Sandy

Sandra A. Stavnes
Deputy Assistant Regional Administrator
Office of Ecosystems Protection and Remediation (8EPR)
USEPA Region 8
1595 Wynkoop Street
Denver, CO 80202
email: stavnes.sandra@epa.gov
phone: 303-312-6117

From: Woolford, James
Sent: Thursday, August 13, 2015 6:26 PM
To: Murray, Bill; Stalcup, Dana; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Stavnes, Sandra; Ostrander, David; Williams, Laura
Subject: Re: Urgent Region 8 Request for Clarification on Cessation Directive


Bill, et. al.

Thanks for inquiring about this site.

I have coordinated with the OSWER IO - Mathy, Barry, and Nitin.

Based on the description in your email, and as you recommend in your email, we approve your continuing your response work at Bullion Mine.

Jim Woolford, Director
Office of Superfund Remediation and Technology Innovation
Office of Solid Waste and Emergency Response
US EPA

Phone: 703-603-8960  (office)

Mailing address:
1200 PA Ave. NW
Washington, DC 20460
Mail Code - 5201 P

Address
2777 S. Crystal Drive
Arlington, VA 22202
Room 5622

Note - EPA email cannot receive or send emails greater than 25 mbs.

From: Murray, Bill
Sent: Thursday, August 13, 2015 7:14 PM
To: Woolford, James; Stalcup, Dana; Cheatham, Reggie
Cc: McGrath, Shaun; Hestmark, Martin; DalSoglio, Julie; Stavnes, Sandra; Ostrander, David; Williams, Laura
Subject: Urgent Region 8 Request for Clarification on Cessation Directive

Subject: Clarification on the Exclusion from the Cessation Directive for Time Critical Removal Actions in general and specifically at Basin Mining NPL Site

Clarification Request: Based on the draft language in the Woolford/Cheatam memo, we want to know if Time Critical Removal Actions are/will be excluded from the cessation directive. We have a number of Time Critical Removal Actions underway at mining sites and this clarification is urgently needed. We would like a written confirmation that we can continue these removals.

BACKGROUND on Bullion Mine at the Basin Mining NPL Site

Removal activities to be completed for OU6 are:

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The distance from the collapsed portal to the well that we are pumping water out of is about 300 feet. If the adit diameter is 4' (most likely scenario), the volume in the adit below the well is 28,201 gallons. If the diameter is 6', the volume is 63,451 gallons. To be extremely conservative, if the diameter is 10', the volume is 176,255 gallons. Our treatment pond below the adit portal holds 350,000 gallons, so even with an ongoing flow rate of AMD from the mine of 10 to 20 gallons/minute, this pond is large enough to contain the mine sludges left in the tunnel between the well and the portal.

It is clear that ongoing pump and treatment of the AMD mine pool in the Bullion adit is the safest path forward as it is relieving pressure on the debris plug, and it would be counter-productive to stop our pumping and treating of mine water now. We believe, based on water elevation measurements in the well standpipe, that we've removed over half the volume of water that was in the adit. The total volume we estimated in the adit was approximately 2.5 million gallons prior to beginning the pumping and treating operation. The OSC is excavating a channel over to the treatment/retention pond today in the unlikely event that the debris plug fails before we complete the pump and treat operations. We have the equipment and materials on site to capture and treat any unexpected breach of the debris plugged adit. I can provide additional pictures and would be happy to go up to the site with you this afternoon if need be.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

**On-going Work at the Pennsylvania Mine
Summit County, Colorado**

Background: The EPA Removal Program is in its third year of work at the Pennsylvania Mine Site, located just upstream of the Keystone Ski resort in the upper portion of the Snake River Watershed. The Site sits above Peru Creek, which flows into the Upper Snake River near the town of Montezuma, CO. From there the Upper Snake joins the Lower Snake just east of the Keystone Resort, and then flows into the Dillion Reservoir. Peru Creek and the Snake River are both listed on Colorado's 303(d) list of impacted waterways. Peru Creek is devoid of all aquatic life, and since 2007 the Snake River has not been able to sustain stable fish populations. In 2007 the Penn Mine Site suffered a surge/blow-out event from a collapsed portal on its lowest of mine works. This resulted in a complete fish kill along the entire reach from the Mine Site to the Dillon Reservoir (approximately 8 miles). In addition to the risk of these types of surge events the Penn Mine is the largest loader of heavy metals and acidic mine water into the Snake River watershed on a daily basis.

Begging in 2013 the EPA and the State of Colorado DRMS program have accomplished the following tasks:

1. Pumped down the "mine pool" that had backed up behind the portal collapse, thus relieving the head pressure behind the blockage.
2. Established a water treatment system to raise the pH and reduce the metals load from the mine drainage.
3. Removed the collapse/blockage on two (of six) levels of mine works, and rehabbed the two portals to allow safe entry into the mine and to minimize the risk of a catastrophic collapse. This also allows water to drain through the mine works into the water treatment system.
4. Installed one of two planned bulkheads in the lowest mine portal of the mine works. This first portal has effectively stopped roughly 2/3 of the flow through the mine works.
5. Begun construction of the second portal (should be complete in 2-3 weeks) which will eliminate >97% of the flow thru the mine works and turn conditions in the works anoxic, which will eliminate acid mine drainage.
6. Re-worked 75% of the surface features (waste piles, tailing ponds, etc.) to eliminate run-on to the contaminated materials, and to control and buffer drainage from these works. This work includes the consolidation and cover installation of most of the waste piles, re-vegetation of denuded areas, and the plugging of stopes and shafts that allowed water into the mine works. This work is scheduled to be completed this season.

Consequences of Work Stoppage: At this point in time to stop work at the Site will have dire results for the public health and welfare and the environment. A work stoppage will also greatly raise project costs as activities are ongoing and contractors and equipment have been mobilized to the site. We are within weeks of eliminating all possibility of a catastrophic discharge and ending the need to treat mine drainage from the Site. Stopping work now will allow highly contaminated mine drainage to once again discharge into Peru Creek untreated. It will allow for the return of conditions inside the mine works

which could lead to future blowouts. We are constantly removing collapses from the drift (the ore body which runs perpendicular to the portals) and pumping down water. If untended, and without the second bulkhead, blockages will re-form and head pressure behind it will return. A work stoppage now will also leave the surface work incomplete, allowing mine waste to erode directly into the watershed. A work stoppage will also greatly impact the partnerships that EPA has established with DRMS, USFS, Summit County, and the Snake River Watershed Coalition. The latter is a local citizen/stakeholder group that has contributed much time, money, and effort into the project.

Stalcup, Dana

From: Cheatham, Reggie
Sent: Monday, August 17, 2015 6:10 PM
To: Hestmark, Martin
Cc: Tulis, Dana; Woodyard, Josh; Irizarry, Gilberto; Woolford, James; Stalcup, Dana; Tyner, Lee
Subject: Request for Exemption at Red and Bonita Mines
Attachments: superfund_removal_guide_for_preparing_action_memo.pdf; Signed Cessation Memo.pdf

Martin,

After reviewing the Action Memorandum associated with the removal action at the Red and Bonita mines, the Office of Emergency Management believes that this removal action is consistent with the exceptions for sites which is included in the attached "Cessation of Work Mining/Tailings Sites and Other Related Actions at Superfund Sites", dated August 14, 2015. The applicable excerpt from the memorandum is directly below:

- Ceasing site operations poses or would pose an imminent threat to increase in environmental risk greater than that if work halts; or
- EPA's emergency response program needs to address or is address imminent threat to public health or the environment; or
- A constructed remedy or ongoing construction is addressing mining

This exception would also apply to the response actions directly related to the Gold King Mine Release. We understand that you are responding to the release as an Emergency Response and will provide an Action Memorandum for these actions as soon as it reasonable to do so. If the Proposed Action Memorandum were to be greater than \$6 million dollars it will require a HQ Approval through the HQ EOC to the Associate Administrator. Also if the Removal Action is over \$2 Million dollars it would require consultation consistent with the attached Superfund Removal Guidance for preparing Action Memoranda.

Please let me know if you have additional questions regarding the Cessation Memorandum as they may relate to your ongoing work in Region 8.

Thanks

Reggie Cheatham, Director
Office of Emergency Management, USEPA
202.564.8003 (O); 202.689.9400 (M);
cheatham.reggie@epa.gov